

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

Deutsche Aerospace Airbus GmbH

for an exemption from §§ 25.785(d),
25.813(b), 25.857(e), and 25.1447(c)(1) &
(c)(3)(ii) of the Federal Aviation
Regulations

Regulatory Docket No. 27784

GRANT OF EXEMPTION

By letter LKQ12-127/05/94 dated May 11, 1994, Mr. Manfred Besinger, LQK, Director, Quality Assurance Development/Procurement, Deutsche Aerospace Airbus GmbH, Kreetzlag 10, D-21129 Hamburg, P.O. Box 95 01 09, D-21111 Hamburg, Germany, petitioned for an exemption from the requirements of §§ 25.785(d), 25.813(b), 25.857(e), and 25.1447(c)(1) & (c)(3)(ii) for the Model A310-203 passenger-to-freighter airplane, to allow the carriage of up to four supernumeraries on the main deck in addition to the maximum four flight deck occupants, with a total occupancy of eight.

Sections of the FAR affected:

Section 25.785(d) at Amendment 25-32 requires, in pertinent part, that there be a firm handhold to enable occupants to steady themselves when using the aisles in moderately rough air.

Section 25.813(b) at Amendment 25-32 requires, in pertinent part, that each passenger emergency floor level exit equipped with an assist means have an assist space next to it.

Section 25.857(e) at Amendment 25-32 requires, in pertinent part, that when a class E cargo compartment is installed on the airplane, the airplane is used for carriage of cargo only.

Section 25.1447(c)(1) at Amendment 25-41 requires, in pertinent part, that oxygen masks be automatically presented to each seated occupant, with manual backup, and that there be ten percent more oxygen masks than occupants.

Section 25.1447(c)(3)(ii) at Amendment 25-41 requires two oxygen masks, similar to those required above, in each lavatory.

Related Sections of the FAR

Section 121.583(a) contains, in pertinent part, a listing of categories of the people who may be carried aboard an airplane in part 121 service without complying with all the passenger-carrying airplane requirements of part 121.

The petitioner's supportive information is as follows:

"Deutsche Aerospace Airbus GmbH, D-211 11 Hamburg-Germany, hereafter designated as "DA," hereby petitions the FAA for an exemption from parts of the requirements of Sections 25.785(d), 25.813(b), 25.857(e), 25.1447(c)(1) and 25.1447(c)(3)(ii) of the FAR to get a Supplemental Type Certificate (STC), pax to freighter, of an Airbus model A310-203 with the possibility of carrying on the main deck up to four (4) non-crewmembers (persons not necessarily assigned some duty associated with the operation of the airplane) in addition to the maximum four (4) flight deck occupants, with a limit on the total occupancy of 8."

DESCRIPTION OF THE AIRPLANE TO BE CONVERTED AND COVERED BY THE EXEMPTION

"The Airbus A310-203 model is a pressurized transport category airplane powered by two turbofan engines. It is included on the United States (U.S.) Type Certificate n°A35EU, first issued on May 30, 1974. The converted A310-203 pax to freighter airplane will have an all-cargo main deck configuration. Application for certification has been asked by STC procedure.

"In order to optimize the cargo missions, accommodation for 4 persons is provided between the flight deck and the main deck class E compartment, in the direct vicinity of the exits. Except for the Sections from which exemption is requested, all design criteria applicable to the carriage of passengers have been taken into account for the design of this seating arrangement. In particular, protection from crash injury and penetration of smoke and noxious gases is provided in the form of a 9g crash net and of a smoke-tight

curtain, which isolate the main deck cargo compartment from the zone where the supernumerary persons are seated. Two emergency exits remain operable located one on each side of the fuselage, both equipped with escape slides. Oxygen supply in case of depressurization (as required in case of smoke warning in the main deck cargo compartment) is ensured by fixed oxygen bottles, which can supply oxygen for all occupants for the maximum possible duration. The occupants are instructed that oxygen masks need to be used by a chime and lighted signs located in their direct eyescan. These information signs can be either manually activated by the flight crewmembers or are automatically turned on by an altitude pressure switch. The front of the mask box is fitted with two half-doors, one of which [is] actuated by the removal of the mask from its housing and initiates the automatic opening of a miniature oxygen valve. Two-way communication with the cockpit is possible through dedicated communication panels and other emergency equipment as required by the applicable Airworthiness Standards are also provided. DA believes that an equivalent level of safety with the parts of the requirements from which relief is sought will be achieved by design precautions and by introduction of instructions in the A310-203 P/F Airplane Flight Manual Supplement defining the conditions under which supernumerary persons supplement may be carried.

EXTENT OF THE REQUESTED REGULATORY RELIEF

"The main purpose of this request for exemption is to permit carriage of non-crewmembers on an all-freighter airplane, which is the direct reason for requesting exemption from Section 25.857(e). Other Sections from which exemption is sought are subordinated to this first one. Exemption from the aforesaid Sections is sought to the following extent:

"Section 25.785(d): no handgrip is installed.

"Section 25.813(b): assist space is not provided next to the emergency exits. The assist space is adequately respected on one side in the cases when the cargo load has not shifted forward, further to crash landing conditions.

"Section 25.857(e): relief is sought to permit carriage of 4 persons on an all-freighter airplane, which has a class E cargo compartment.

"Section 25.1447(c)(1): one oxygen dispensing unit is supplied and readily available for every seated occupant. The occupants will take hold of the mask upon instruction via lighted signs and chime controlled by the flight crew.

"Section 25.1447(c)(3)(ii): one oxygen mask is stored in the lavatory. It can be connected to the fixed oxygen distribution system.

SUPPORTING ARGUMENTS

"1. The cargo operators need for their missions a number of support personnel, necessary for the safe handling of the cargo in the process of loading/off-loading. Such personnel are obviously needed both at departure and destination of a cargo flight. It is particularly important that the cargo handlers are present upon airplane arrival if perishable goods or live animals are carried. The most efficient, surest and cheapest way to assure their attendance at destination airport is to transport them aboard the cargo flight.

"2. Among their various missions, the cargo operator may have to carry particular kinds of goods, such as live animals, hazardous materials, valuable or perishable cargo. Such types of cargo cannot be left unattended, even for the duration of a flight, and the presence of personnel qualified in their handling is necessary on the airplane on which they are carried. Safety and efficiency of the operation will therefore be enhanced.

"3. Cargo operators also need to have qualified personnel necessary for operation and maintenance purposes at various locations. They will optimize their missions if they are permitted to carry their personnel aboard their cargo flights, thus saving travel by regular passenger flights.

"4. The Airworthiness Standards applicable to the STC of the Airbus A310-203, as well as the current Airworthiness Standards, actually consider carriage aboard commercial flights of:

- * crewmembers, including flight crewmembers and cabin attendants, who are each assigned duties associated with the operation of the airplane,

- * passengers, who have no expected ability in the use of emergency provisions and therefore need to be attended.

"The categories of occupants for which this exemption is sought are qualified aeronautical personnel. Furthermore, they are trained as to the autonomous use of emergency equipment and emergency exit operation. It will also be required that the operator only allows access to these seats to persons found able to perform these tasks on their own.

"5. Therefore the assist space adjacent to the emergency exits required by Section 25.813(b) for assisting the passengers in evacuating is not necessary as the considered categories of personnel will be trained for door operation and autonomous evacuation. Both doors are equipped with a power assist opening system and self-deploying slides.

"Likewise, the requirements of Sections 25.1447(c)(1) and (c)(3)(ii) to have automatic presentation of oxygen dispensing units before the cabin pressure altitude exceeds 15,000 ft are compensated by the fact that the users will have knowledge of equipment location and use. The masks provided are quick-donning masks with regulator and are immediately available to seated occupants. A similar procedure for reach and use of dispensing units applies to flight crewmembers.

As far as the excess 10 percent dispensing units also required by Section 25.1447(c)(1) are concerned, they are mainly required for two purposes: use by cabin attendants moving along the aisles, passenger's awkwardness to reach one mask. None of these factors applies to the considered configuration.

"[The] requirements of Section 25.785(d) to have handgrips installed when seatbacks do not allow a firm handhold could not be met due to the three (3) rearward facing seats. For the considered categories of occupants, the recommendation to remain seated with seat belt fastened, as far as practicable, will be made in order to limit moving around to the necessary minimum. Nevertheless due to reduced area compared to the given configuration, and a normal pax compartment, several holding devices are available.

PUBLIC INTEREST

"The granting of this exemption will be in the public interest, as by having the possibility of carrying supernumerary persons aboard their cargo flights, the U.S. operators of the A310-203 P/F Airbus airplanes will be able to operate under optimal safety conditions, to render their operation more efficient and to make substantial savings in carrying their personnel from one place to another. The reasons for these benefits are developed in arguments 1, 2 and 3 above. This will also improve the utility of cargo airplanes."

REQUEST FOR WAIVER

"Due to difficulties in interpreting the applicable regulations which do not specifically address the case (see our arguments, § 4) and in particular the FAR 25.857(e), also due to late identification, and information by FAA that the granted waiver to Airbus Industrie on similar project A300 F4-600R cannot be transferred. This item came up late within the certification process.

"The need for the present exemption has just been raised by the FAA, although DA had provided already starting in May 93 with FAA-ACO Atlanta, (Nov. 93 ACO New York) all the information relevant to the modification of this aircraft. In order to allow on-schedule entry into service with a U.S. operator by the 15th of July 1994 with the essential possibility of carrying supernumerary persons and to avoid any hardship on the operator especially for economic reasons, therefore DA requests that the 120 day advance filing requirements of Section 11.25(b)(1) of the FAR be waived.

"DA believes that good cause exists to waive the publication and comment requirements of Section 11.27(c) of the FAR, in accordance with Section 11.27(j)(3)(i). In particular, we feel that the main purpose of this petition and the reasons presented in this petition are identical to exemptions previously granted by the FAA. The exemption granted to Airbus Industrie as TC holder for the comparable A300 F4-600R similar design to A310-203 P/F should also be considered."

Notwithstanding the petitioner's arguments in favor of waiving the noted publication and comment requirements, the FAA considers that these requirements may, in fact, be observed without undue delay or adverse effect on either the petitioner or its customers. Accordingly, a summary of the petitioner's May 11, 1994, petition was published in the Federal Register on June 20, 1994 (59 FR 31667). No comments were received.

The FAA's analysis/summary is as follows:

(Supplemental information necessary to evaluate this petition is contained in document, "A310-203 P/F Certification Review Item (CRI) Special Condition S-2, Issue 2, Dated May 10, 1994, Closed Status, for Airbus A310-203 Major Change DA PFM 080 93A (A310-203 P/F), Installation of a Courier Area," a copy of which is available in the docket for this rulemaking.)

(Note is made that, although the petition statement and summary appear to give the impression that Deutsche Aerospace Airbus may have intended to seek relief for flightdeck occupants as well as main deck occupants, no supporting material or arguments addressed flight deck accommodations at all. Consequently, the FAA's analysis and exemption are necessarily confined only to the subject of carriage of occupants on the main deck.)

Part 25 aircraft certification regulations do not address occupants other than crew and passengers. Accordingly, the FAA has previously granted petitions for exemption to allow the carriage of persons in addition to flightcrew on freighter airplanes, provided certain conditions were met. Those conditions have varied, depending on the airplane design, the nature of the proposals under consideration, and the number of persons involved.

Deutsche Aerospace Airbus has requested relief from the requirements of § 25.857(e), which permit carriage of only cargo when a class E cargo compartment is installed on the airplane. Class E cargo compartments are usually remote from the flight deck and encompass the entire interior of the airplane. Fires that might occur in this type of cargo compartment are controlled by starving the fire of oxygen. This is accomplished by depressurizing the airplane and maintaining a cabin altitude that will not support combustion. For this reason, only crewmembers occupying the flight deck are normally permitted on board such airplanes.

A major concern in permitting occupancy by non-crewmembers outside the flight deck on such airplanes is in assuring that there is a suitable means for preventing smoke penetration into this occupied area. Another concern is that the persons allowed on board the airplane are limited to those that are briefed on emergency equipment and procedures and are found by the operator to be both physically fit and willing to use the emergency equipment and means of emergency egress provided. Deutsche Aerospace Airbus's design satisfies these concerns by providing a smoke curtain, and proposing appropriate limitations on the occupants.

A major positive feature of Deutsche Aerospace Airbus's A310-203 freighter conversion design is the retention of the forward passenger doors and means of emergency egress. These doors have the dimensions (42"X72") of Type A exits, and incorporate inflatable escape slides to facilitate egress. A passenger airplane with the same number of occupants would be required to have only a pair of much smaller 20"X36" Type III exits. Even though the interior arrangement of this airplane does not provide all of the required access provisions to fully classify the exits as Type A, they are far superior to the minimum Type III exits required. The FAA considers that an assist space is not necessary in this case due to the higher level of training and awareness of the occupants.

The requirement for handholds is to assure that occupants have a means to steady themselves in moderately rough air while traversing the main aisles of typical passenger airplanes. On the A310-203 freighter, the occupied area is very small, with no aisles and nowhere to go, and it is possible to return to each seat very quickly. Therefore, the FAA concurs with the petitioner that it is not necessary to provide dedicated handholds beyond those that may be already incidentally available.

The FAA considers that supernumeraries should have a supplemental oxygen system that is comparable to the automatically presented mask system that is required for passengers. However, taking into account the extra knowledge and training that supernumeraries will have, it is not considered necessary that an equivalent system be provided. Deutsche Aerospace Airbus's proposal provides for masks that are installed in a readily accessible location visible to all occupants, and that are of the quick-donning variety, which requires only a single motion to unstow and don. A signal to don masks is proposed to be by the simultaneous illumination of a lighted sign and a chime (the evaluation of this system for acceptability should include a determination that the chime or other dedicated aural means is sufficiently loud to awaken occupants during expected ambient noise levels). This signal is initiated automatically prior to the cabin altitude reaching 15,000 ft., with manual backup capability from the cockpit. Since the supernumeraries will be briefed on the location and donning procedures of these masks and the signals to require their use, the difference of this system from automatically presented masks provided to passengers in accordance with the requirements of § 25.1447(c)(1) is considered acceptable. In addition, the FAA concurs with the petitioner's arguments that the requirements of § 25.1447(c)(1) for ten percent more masks than occupants is unnecessary and inappropriate in this case. For the lavatory, the petitioner is noted to be proposing the installation of one mask in lieu of the two masks required by § 25.1447(c)(3)(ii), but no

arguments are offered in support of this proposal. The FAA nevertheless believes that an exemption is warranted because neither flight attendant assistance nor parent-child occupancy of the lavatory would occur on this airplane. Since the petitioner does not address any further aspect of the lavatory oxygen system, the FAA assumes that it is the typically provided automatically presented mask as required, and is not a subject of this exemption.

In consideration of the foregoing, I find that a grant of exemption is in the public interest and will not affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in §§ 313(a) and 601(c) of the Federal Aviation Act of 1958, delegated to me by the Administrator (14 CFR 11.53), Deutsche Aerospace Airbus is hereby granted an exemption from §§ 25.785(d), 25.813(b), 25.857(e), and 25.1447(c)(1) & (c)(3)(ii) of the Federal Aviation Regulations. The petition is granted to the extent required to permit type certification of Airbus Model A310-203 passenger-to-freighter airplanes, with provisions for the carriage of persons other than flight crewmembers when the airplane is equipped with two floor-level exits with escape slides, within the occupied main deck area. The following limitations apply:

1. The airplane flight manual must contain a limitation that occupancy outside of the flight deck is restricted to a maximum of four persons;
2. Occupants are limited to the categories specified in §§ 121.583(a)(1) through (7);
3. Each occupant must be briefed by a flight crewmember on the use of the exits and emergency equipment prior to each flight; and
4. The operator must determine that each occupant is physically able to accomplish the necessary emergency procedures.

Issued in Renton, Washington, on July 13, 1994.

/s/ Stewart R. Miller
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service, ANM-100